



# Evaluating University Degree Programs Regarding the Effective Use of Public and Private Funding

Douglas Burleigh<sup>1\*</sup>, Marina Kuimova<sup>2</sup>, Maxim Mazhanov<sup>3</sup>

<sup>1</sup>La Jolla Cove Consulting, San Diego CA 92117, USA, <sup>2</sup>National Research Tomsk Polytechnic University, Lenin Avenue 30, Tomsk, 634050, Russia, <sup>3</sup>National Research Tomsk Polytechnic University, Lenin Avenue 30, Tomsk, 634050, Russia.

\*Email: [dburleigh@aol.com](mailto:dburleigh@aol.com)

## ABSTRACT

The subject of this paper is making educated decisions on the use of Public (governmental) and private funding to support the acquisition of university degrees in majors that have a low probability of providing a career or employment. Discussion topics include return on investment, and the realistic expectations of obtaining jobs in the field of study after graduation. This paper discusses the effectiveness of university degree programs with respect to the use of public funding and the probability of graduates' employment. It is proposed that a system of metrics be developed to evaluate the potential of each degree program to provide employment in that field and to predict the probability of employment.

**Keywords:** Degree Programs; Education Loan; Employment; Higher Education; Labor Market; Public Funding, Return on Investment

**JEL Classifications:** I260, I280

## 1. INTRODUCTION

In this paper, the term, "public funding" means any funding that comes from a branch of government. In the US (United States) this can be Federal, State, County or City governments. "Private funding" is any funding that is provided by parents, other individuals, corporations, or private financial institutions.

The progress and success of most societies depend strongly on the focus and effectiveness of the educational system, especially the higher education system. Education has a definite impact on economic growth and national wealth. The goals of higher education are to impart knowledge and skills to students to enable graduates to enter a variety of professions and to lead productive lives that benefit society. Educational institutions must respond to changes in demand for graduates in each major field of study.

Well-educated people generally contribute significantly to modern society. They generally have good communication skills. They are generally successful in their careers, so they support themselves and their families. They may be capable of developing new technologies, which may create additional jobs.

Society must provide financial assistance for higher education, either through scholarships or loans. Since funding to support education is never unlimited, this funding must be used judiciously. Ideally, the funding will be used to obtain a degree that will lead to a profession and a successful career.

Universities themselves may also provide support for students, as they may have discretionary funding from public or private sources. Some universities have endowment funds that may be dispersed based on merit or need. Professional societies provide endowments to specific universities for scholarships in specific fields. And most universities have public funding for scholarships or loans. And some use internal competitions, whose winners are given grants.

Universities encourage the academic success of their students; they also support research, communication in other languages, and intercultural skills (Badley, 2002; Wigdahl et al., 2014; Sanchis et al., 2015; Burleigh, Arnst et al., 2016).

Universities attach great importance to the success of their graduates in obtaining meaningful employment after graduation. To achieve this goal, universities use the following:

- Outreach programs to promote the concept of meritocracy (Addi-Racah and Israelashvili, 2014);
- A democratic organizational culture that takes the students' interests into consideration (Steeves, 2015);
- A digital learning environment that is designed to achieve institutional objectives and to individualize learning (Brudermann, 2015; Resta and Laferrière, 2015; Maldague et al., 2016; Rajakumar, 2016);
- Innovative teaching methods (Hartman, 2012; Basal, 2015; Tatzl, 2015; Avinash and Samson, 2015; Kuimova and Zvekov, 2016; Jia and Huang, 2016; Burleigh and Trofimova, 2016; Nugroho, 2016; Uzunboylyu, 2016; Assaggaf and Bamahra, 2016);
- Courses aimed at the development of curriculum-based career management and entrepreneurial skills (Taylor and Hooley, 2014; Bondareva and Tomlain, 2016; Iglesias-Sánchez et al., 2016).

Educational institutions should understand the requirements of the labor market to ensure that their degree programs prepare students for employment in fields in which the chance for employment is high.

In addition, universities monitor the labor market to determine in which areas of the university programs there is a surplus of qualified people or a lack of jobs, and in which areas there is an unmet demand for qualified employees. Though it is difficult to accomplish, it is also useful to attempt to predict the future demand for graduates in specific fields.

Universities strive to address not only labor market needs, but also students' preferences. They do this by:

- Designing or discontinuing degree programs as needed
- Establishing contacts with potential employers (organizations and companies)
- Organizing enterprises and long-term contracts.

## 2. DISCUSSION

Public funding for scholarships is limited, so it should be used judiciously to provide the greatest benefit to the public. Providing money to support the acquisition of degrees that do not result in careers should be minimized.

In the US, public funding provides direct scholarships, as well as loans. Additionally, loans may be obtained privately from a bank or other financial institutions.

University educational funding comes from:

1. Government scholarships.
  - a. Federal.
  - b. State.
  - c. County.
  - d. City.
2. Corporate (private companies) scholarships.
3. University scholarships.
  - a. Government funded
  - b. Endowments from:

- i. Corporations.
  - ii. Wealthy alumni.
  - iii. Estates of late alumni.
4. Loans.
    - a. Government.
    - b. Financial institutions (banks, etc.).
    - c. Parents and/or family.
    - d. Personal.

Graduates who cannot get jobs cannot pay back loans, so the loan default rates will be very high for graduates in curricula that have a low probability of obtaining a job. Consider, for example, a student who graduates with a loan of \$100,000. This might require a monthly payment of approximately \$1000, depending on the interest rate and the term of the loan. But if the graduate cannot get a job in his field of study and can only get a low-paying job that may not even require a college degree, it may be impossible for the graduate to keep up with loan payments. US laws do not allow student loans to be discharged by bankruptcy. This situation is not uncommon, and it can financially affect the graduate for life. It can even cause financial ruin. And a large student loan payment could prevent the graduate from ever being able to borrow additional money for a major purchase such as a house.

While there may be a small number of jobs in every field, the number of graduates in a field may exceed the number of jobs in that field by orders of magnitude, so the chance of someone getting a job in that field is very low. In some "esoteric" fields the only job possibility is to obtain a doctorate degree and teach the subject to others. The number of teachers required for some fields is very low, and the turnover is very low.

The use of public or private funds to obtain such degrees may be viewed as a poor investment.

This does not mean that getting a degree is not worthwhile, but both the means of financial support and the expected result should be evaluated. Some jobs only require that applicants have a college degree, and the employer doesn't care what the major is. In that case, the possession of a degree is used only as a qualifier or "filter," and the specific knowledge obtained in the field of study is not used. And in the US, the study of law is a generally a post-graduate program. While some US universities offer "pre-law" programs, there are generally no prerequisite requirements for law school enrollment.

Some wealthy people may not need to get a job after graduation.

A 2014 report by the Federal Reserve Bank of New York (Abel et al., 2014), defined an "underemployed" graduate as one who is working in a low-paid job that doesn't require a college degree. This report concluded that, at the beginning of 2013, nearly half (44%) of recent US university graduates were working in jobs that do not require a bachelor's degree, and roughly 6% of recent graduates aged 22-27 were unemployed.

Arguably, every field of study has some value to society. However, public funds should be used judiciously to provide the maximum

benefit to the public. To achieve this goal such funds should be used to support students in programs that have the highest probability of providing a career, especially in a field that benefits society, such as medicine, engineering and the sciences.

Well endowed (mostly private, such as Ivy League (in US)) universities can afford to provide scholarships for any subject they choose. But public funds should not be used to support degrees that do not provide a satisfactory return on investment (ROI) to the public.

### 2.1. Supply and Demand

Supply and demand should be considered. Public funds should not provide financial support for 1000 art history majors when there are jobs for only 50.

Public money should not be used to contribute to an oversupply of graduates with degrees for which there is little or no demand.

“Providing public money to support the acquisition of degrees which are unlikely to result in a productive career and employment is a disservice to society; such degrees should be given low priority and ranking or be disqualified from the support of public funds” (Selingo, 2016).

Graduates who obtain jobs that pay well will pay more taxes, so more money is returned to the government as a return on their investment in education.

Graduates who can only obtain low-paying jobs will pay little in taxes and will have a higher likelihood of using government aid for such things as medical expenses, child care, and even living expenses.

Public funds should not be used to support such degrees, as “payback” (ROI) is unlikely.

### 2.2. ROI

One method of calculating ROI for a specific degree would be to determine the total cost of obtaining the degree, including tuition, room and board, fees and books. This would vary greatly depending on the University. Then determine an average lifetime income for jobs requiring that degree. Then subtract the cost of the degree from the lifetime income, and finally divide that figure by total cost of the degree.

### 2.3. Commercial Value

LCV = Low commercial value (“esoteric”) degrees rarely lead to jobs in the field. These would provide a low or even negative ROI.

HCV = High commercial value (“practical”) degrees reliably lead to jobs in the field. These would provide a positive and possibly high, ROI.

The most financially dangerous case would be to get an LCV degree from an expensive university. This is acceptable if private funding is used, but less acceptable when using public funding.

### 2.4. Example

A student obtains a degree in Philosophy (LCV) from a University that costs \$50K per year (US Ivy League, NYU, and many more). The total cost of the degree is over \$200K. If the average salary of a Philosophy graduate is \$25-50K, the number of years it would take to repay \$200K could be 20 or more.

If a student is determined to obtain a degree in philosophy, which is unlikely to result in employment, it would be far better if the student attended an inexpensive university and graduated with a much smaller loan, one that is easier to pay off with the low-paying job the student is likely to have.

### 2.5. Proposed Plan

There should be a program to evaluate the probability of educational success and ROI. Some US states and financial institutions perform some form of evaluation for their own purposes. Unfortunately, this information is not usually shared with students and their parents at the beginning of a university program or when a student changes majors.

Universities should evaluate each of their degree programs annually. They should contact graduates from each program after 1, 3, 5, and 10 years (for example) to see whether graduates are working in their degree field, a closely related field, or in a field unrelated to their degree program. They should also ask how much money they make and whether they are satisfied with their choice of major.

Each program should be given a numerical score that represents the success of graduates in getting jobs in that field.

Each program should also be given a financial score based on the cost of the degree (high or low cost universities) and the probability of the financial benefit of that degree. So a BA degree in art history (LCV) from an expensive private university, such as Harvard, may have a negative value, while an engineering degree (HCV) from a less expensive state university, such as the Pennsylvania State University (“Penn State”) may have a high value.

Programs could also be evaluated for the percentage of students who successfully complete a degree in the program or transfer to another.

Students and their parents should be informed of the probability of success in getting a job in the student’s chosen major. If the chance of financial success is low (LCV), they should be advised against pursuing that degree. They should be required to sign a statement that they understand this and that they assume responsibility for their choice after being informed of the financial risk.

Students should be denied public funding for (LCV) degree programs that have low scores.

These proposals will be unpopular with Universities, as the process could drive students away from many majors and could jeopardize the existence of those majors.

However, “consumers” of educational services deserve to be well-informed regarding the financial risk they are accepting.

## 2.6. Example of Ranking of University Degree Programs

This is a hypothetical ranking of university degree programs based on the probability of obtaining a job in the field of study. This ranking is only an example based on speculation by the authors; it is not supported by any data.

Real rankings would need to be generated using real data.

High (HCV):

1. Engineering (all types, though some are better than others).
  - a. Mechanical.
  - b. Civil.
  - c. Chemical.
  - d. Petroleum and natural gas.
  - e. Nuclear.
  - f. Industrial.
  - g. Aerospace.
  - h. Materials.
  - i. Others.
2. Computer science and engineering.
  - a. Information technology.
3. Sciences.
  - a. Mathematics.
  - b. Physics.
  - c. Chemistry.
  - d. Biology, microbiology.
  - e. Meteorology.
4. Pre-med.
5. Nursing.
6. Accounting.
7. Finance.

Medium:

1. Education (depends strongly on specialty; sciences and math are good, language and history are not as good).
2. Business Administration.
3. Geology.
4. Astronomy.

Low (LCV):

1. Psychology (Bachelor’s).
2. Sociology.
3. Communication.
4. History.
5. English (in US).
6. Foreign languages (French, German, Italian, Russian, etc.).

Very low (VLCV):

1. Philosophy.
2. Art.
3. Art history.
4. Theater.
5. Music.
6. Liberal arts.
7. General studies.

8. Linguistics.
9. Literature.
  - a. English.
  - b. French.
- c. Other.
  1. Latin and Greek.
  2. Archeology.
  3. Anthropology.
  4. Ethnic studies.
    - a. African.
    - b. Asian.
    - c. American.
    - d. European.

Many students would be better off in a 2 year program that leads to a job or internship than to obtain a bachelor’s degree in a field where jobs are difficult or impossible to find. There’s a disconnect between supply (what the education system produces) and demand (what employers seek) (Selingo, 2016).

In higher education, the supply is not necessarily connected to the demand. The supply is provided by the students’ choice of a field of study and the demand depends on developments in the marketplace, in industry and in global developments.

## 3. CONCLUSION

Education has always been an important part of government, as a country’s future depends on it. Education is the basis of an individual’s career. It prepares students for further professional growth and development.

The main goal of higher education is to provide degree programs that meet the needs of society, and to provide graduates who are in demand in the labor market. Higher education should be “cost-effective” and ensure a reasonable probability of employment and adequate income.

While every field of study may have some value to society, public funds should be used judiciously to provide the maximum benefit to the public. To achieve this goal such funds should be used to support students in programs that have the highest probability of providing a career.

Both parents and students should be provided with data on the realistic probability of employment and ROI for the degree the student is pursuing so they can make an informed decision on whether to pursue that degree.

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